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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte EDWIN C. ILIFF

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Appeal 2009-004403
Application 09/785,044
Technology Center 2100

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Decided: March 19, 2010

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Before LANCE LEONARD BARRY, THU A. DANG, and JAMES R.
HUGHES, *Administrative Patent Judges*.

DANG, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF CASE

Appellant appeals the Examiner's final rejections of claims 1-52 under 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

A. INVENTION

According to Appellant, "embodiments of the present invention relate to a computerized system for time-based diagnosis of a patient's medical complaint by use of dynamic data structures" (Spec. 1, ll. 26-29).

B. ILLUSTRATIVE CLAIMS

Claims 1 and 6 are exemplary and reproduced below:

> 1. A method of diagnosing a patient through the reuse of medical script objects used in the automated diagnosis or management of a medical condition, the method comprising:
>
> providing a plurality of disease objects, each disease object associated with a plurality of symptom objects;
>
> assigning a weight for each symptom, wherein a particular disease object includes a preferred weight for one or more preferred symptoms and an alternative weight for one or more related alternative symptoms, wherein the alternative symptoms for a particular preferred symptom are selected from a set of archived symptom objects that are available for reuse;
>
> selecting a disease object applicable to a patient; and
>
> invoking a preferred symptom object or one of the related alternative symptom objects for the selected disease object so as to output a diagnosis of a patient based on the object invocation.

6.   An object based automated computer-implemented diagnostic system comprising:

a plurality of objects which interact to determine a diagnosis of a patient, wherein the objects includes [sic] at least two diagnostic objects comprising:

a disease object, a symptom object, a valuator object, a question object, a node object and a candidates object, wherein the objects are arranged in a hierarchical relationship such that the result of one of the objects is input to another of the objects; and

at least one of the diagnostic objects directly invokes another of the diagnostic objects in a computer-based medical diagnostic system so as to output a diagnosis of a patient based on the prior object invocation.

C. REJECTIONS

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Iliff	US 5,868,669	Feb. 9, 1999
Gray	US 6,149,585	Nov. 21, 2000
Branson	US 6,598,035 B2	Jul. 22, 2003

Claims 6-10, 20-42, and 49-51 stand rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter.

Claims 48, 49, 51, and 52 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 6-9, 20-27, 29-38, 40-42, and 49-51 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the teachings of Iliff.

Claims 1, 3-5, 10-13, 15-19, 43-48, and 52 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Iliff and Gray.

Claims 2 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Iliff, Gray, and Branson.

Claims 28 and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Iliff and Branson.

II. ISSUES

Has Appellant shown the Examiner erred in:

1) concluding that the "computer-implemented diagnostic system" of claim 6 is directed to nonstatutory subject matter?

2) concluding that the limitation "wherein the selected disease object directly invokes another of the plurality disease objects" (claim 48) fails to comply with the written description requirement?

3) finding that Iliff teaches "at least two diagnostic objects comprising: a disease object, a symptom object, a valuator object, a question object, a node object and a candidates object, wherein the objects are arranged in a hierarchical relationship such that the result of one of the objects is input to another of the objects; and at least one of the diagnostic objects directly invokes another of the diagnostic objects … so as to output a diagnosis of a patient based on the prior object invocation" (claim 6)?

4) concluding that the combined teachings of Iliff and Gray would have suggested "wherein the alternative symptoms for a particular preferred symptom are selected from a set of archived symptom objects that are available for reuse" (claim 1)?

III. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Iliff

1)   Iliff discloses "a computerized medical diagnostic and treatment advice (MDATA) system" that gives medical advice to the general public over a telephone network (col. 2, ll. 62-66).

2)   The MDATA system implements, "in a computer system, a method of automating medical diagnosis and treatment advice, comprising the steps of: providing a set of steps directed to diagnosing a selected medical problem, providing a representation of connected nodes corresponding to the set of steps, providing a set of action lists associated with each node, providing a script for each one of selected nodes, each script requesting information or providing advice to the patient … and, based on patient answers and the diagnostic steps, generating medical advice to the patient" (col. 5, ll. 11-24).

3)   The MDATA system also implements, "in a computer, an authoring language translator, comprising: means for parsing an authoring language program, the program comprising a set of nodes and associated action lists written in a predetermined authoring language, means … for generating a portion of a node table, the node table comprising a record for each node including parent node information and a node type" (col. 5, ll. 25-33).

4)   "The MDATA system's authoring language allows flat information to be restructured into a hierarchical or layered format" (col. 14, ll. 44-47).

5)   The "process for translating a medical algorithm written in the authoring language" includes the translation of an ASCII file containing "node definitions" and conforming to a particular syntax, such that the ASCII file is "convert[ed from] a human-readable document into a machine readable format" (col. 15, ll. 25-44).

6)   "Keywords" of the authoring language include a "node" keyword that "denotes the beginning of a new node[,]" a "parent" keyword that "defines the parent of the node being defined[,]" and a "type" keyword that "defines the class of the node being defined" (col. 16, ll. 1-11).

7)   The "types" of nodes include a "prompt" node that "requests some numeric information from the caller" to be "stored in the next node" and a "link" node for which "[n]o caller response is required at this node, algorithm processing will continue at a predetermined node" (col. 16, ll. 14-23).

8)   A past medical history objects database provides a catalog of codes corresponding medical conditions or diagnoses that are not expected to change during the life of the patient (col. 23, 26-33).

9)   The past medical history objects are configured when the patient completes a medical questionnaire (col. 24. ll. 20-23).

10)   If a medical algorithm requires a past medical history object that has not yet been configured, the evaluation process invokes a past medical history function before it continues with the algorithm (col. 24, ll. 25-28).

11)   Each patient has a past medical history file, which contains records describing medical events or conditions and is appended each time a past medical history object is configured for the patient (col. 24, ll. 29-33).

IV. PRINCIPLES OF LAW

Non-functional Descriptive Material

Nonfunctional descriptive material is given no patentable weight and treated as analogous to printed matter cases where what is printed on a substrate bears no functional relationship to the substrate. *See In re Ngai,* 367 F.3d 1336, 1338-39 (Fed. Cir. 2004) and *In re Gulack,* 703 F.2d 1381, 1385 (Fed. Cir. 1983) ("Where the printed matter is not functionally related to the substrate, the printed matter will not distinguish the invention from the prior art in terms of patentability.").

35 U.S.C. § 101

"'[F]unctional descriptive material' consists of *data structures* and computer programs which impart functionality when employed as a computer component." MANUAL OF PATENT EXAMINING PROCEDURE § 2106.01 (rev. 6, Sept. 2007) ("MPEP") (emphasis added). Functional and non-functional descriptive material, however, are both nonstatutory when claimed as descriptive material per se. *Id.*; *see also In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

35 U.S.C. § 112, 1st paragraph

"The specification shall contain a written description of the invention … in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains … to make and use the same." 35 U.S.C. § 112, first paragraph. To satisfy the written description requirement,

a patent specification must describe the claimed invention in sufficient detail that a skilled artisan can reasonably conclude the inventor had possession of the claimed invention. *See Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319 (Fed. Cir. 2003).

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35 U.S.C. § 102

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In rejecting claims under 35 U.S.C. § 102, "[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation." *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citation omitted). "Anticipation of a patent claim requires a finding that the claim at issue 'reads on' a prior art reference." *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed Cir. 1999). "In other words, if granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated, regardless of whether it also covers subject matter not in the prior art." *Id.* (citations omitted).

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V. ANALYSIS

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In this Decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make in the Appeal Brief are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

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35 U.S.C. § 101

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Appellant argues that claim 6 is directed to a "system" and, therefore, "falls under the protectible [sic] statutory category of a 'machine,' constituting patentable subject matter under 35 U.S.C. § 101" (App. Br. 12; citing *Ex parte Fressola*, 27 USPQ2d 1608, 1611 (BPAI 1993)).

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The Examiner responds that "whether a claim recites a machine implemented process is not determinative of whether that process claim is statutory" and "a claim that is nothing more than a machine-implemented abstract idea is invalid" (Ans. 20).

Thus, an issue we address is whether Appellant has shown the Examiner erred in concluding that the "computer-implemented diagnostic system" of claim 6 is directed to nonstatutory subject matter.

Claim 6 is directed to an "object based automated computer-implemented diagnostic system comprising" only "a plurality of objects." However, according to Appellant, "[i]n computer software terms, an object is combination of data and processes that manipulate the data" (Spec. 10, ll. 22-23). That is, according to Appellant, claim 6 is directed to data and processes that manipulate the data.

We therefore find that the claimed invention can exist solely in software and data structures. As the breadth of claim 6 does not preclude an embodiment of only data structures, we conclude that claim 6 is directed to nonstatutory subject matter. *See Warmerdam,* 33 F.3d at 1361-62.

Contrary to Appellant's argument, *Fressola* does not instruct that any "system," e.g., such as the recited "object based automated computer-implemented diagnostic system," is a "machine" under 35 U.S.C. § 101. Rather, *Fressola* holds that a display system, claimed by reference to the specification, fails to satisfy 35 U.S.C. § 112, second paragraph. *See* 27 USPQ2d at 1611. *Warmerdam* squarely addresses Appellant's argument by holding that mere data structures are not "embraced by the term 'machine'" under 35 U.S.C. § 101. *See* 33 F.3d at 1362.

Accordingly, Appellant has not shown the Examiner erred in concluding that the "computer-implemented diagnostic system" of claim 6 is directed to nonstatutory subject matter. We therefore affirm the rejection of claim 6, and dependent claims 7, 8, 20-30, 49, and 50 falling therewith, under 35 U.S.C. § 101.

Since Appellant contends that independent claim 9 satisfies 35 U.S.C. § 101 for "the same reasons as discussed" for claim 6 (App. Br. 14), claim 9 falls with claim 6. We therefore affirm the rejection of claim 9, and dependent claims 10, 31-42, and 51 falling therewith, under 35 U.S.C. § 101.

35 U.S.C. § 112, first paragraph

As to dependent claim 48, Appellant argues that the limitation "wherein the selected disease object directly invokes another of the plurality of disease objects" is adequately described by the published application at paragraph [0086] (App. Br. 15-16), which corresponds to the as-filed Specification at p. 11, l. 28 – p. 12, l. 8.

The Examiner responds that the Specification describes each "disease object" as being "selected/invoked by the system, not by a disease object" (Ans. 23).

Thus, another issue we address is whether Appellant has shown the Examiner erred in concluding that the limitation "wherein the selected disease object directly invokes another of the plurality of disease objects" (claim 48) fails to comply with the written description requirement.

To satisfy the written description requirement, Appellant's Specification must describe the above limitation in sufficient detail that a skilled artisan can reasonably conclude the inventor had possession of the claimed invention. *See Moba*, 325 F.3d at 1319.

Appellant cites the Specification as disclosing an "Appendicitis Disease Object" that "invokes another disease object" (Spec. 12, ll. 3-5); and as disclosing that a disease object "passes the patient on to still other disease objects" (Spec. 12, ll. 4-5). In view of these disclosures, we agree with Appellant that the Specification describes a disease object directly invoking another disease object. Thus, we conclude that the Specification describes the limitation "the selected disease object directly invokes another of the plurality of disease objects" (claim 48) in sufficient detail, i.e., such that a skilled artisan can reasonably conclude the inventor had possession of the claimed invention.

Accordingly, Appellant has shown the Examiner erred in concluding that claim 48 fails to comply with the written description requirement. We therefore reverse the rejection of claim 48, and its dependent claim 49 falling therewith, under 35 U.S.C. § 112, first paragraph.

Similar to claim 48, claims 51 and 52 recite "wherein one of the plurality of disease objects directly calls another of the plurality of disease objects" (claim 51) and "wherein the selected disease object directly invokes another of the plurality of disease objects" (claim 52). For the above-stated reasons, we also reverse the rejection of claims 51 and 52 under 35 U.S.C. § 112, first paragraph.

35 U.S.C. § 102

As to independent claim 6, Appellant acknowledges that Iliff teaches "programming in an object oriented language such as C++," but argues that C++ programming "is different than precisely specifying the diagnostic objects recited in Claims [sic] 6" (App. Br. 17-18).

The Examiner responds that Appellant has not clarified how a prior art C/C++ object oriented language would be different from the instant application's object oriented language in specifying "diagnostic objects" (Ans. 24). The Examiner also responds that "Iliff teaches various medical objects not only created, but also arranged in a hierarchical manner" (Ans. 24); and teaches "a node map in which a node directly invokes another node" (Ans. 24-25).

Thus, another issue we address is whether the Examiner erred in finding that Iliff teaches "at least two diagnostic objects comprising: a disease object, a symptom object, a valuator object, a question object, a node object and a candidates object, wherein the objects are arranged in a hierarchical relationship such that the result of one of the objects is input to another of the objects; and at least one of the diagnostic objects directly invokes another of the diagnostic objects … so as to output a diagnosis of a patient based on the prior object invocation" (claim 6).

Contrary to Appellant's argument, claim 6 does not "precisely specify[] the diagnostic objects" (App. Br. 17-18). Rather, claim 6 merely recites the "diagnostic objects" as comprising "a disease object, a symptom object, a valuator object, a question object, a node object and a candidates object." The labels "diagnostic," "disease," "symptom," "valuator," "question," "node," and "candidates" are nonfunctional descriptive material that are not functionally related to their respective objects. That is, the labels do not change the functionality of or provide an additional function to the objects of claim 6.

When descriptive material is not functionally related to the claimed embodiment, the descriptive material will not distinguish the invention from

the prior art in terms of patentability. *See Ngai*, 367 F.3d at 1339 and *Gulack*, 703 F.2d at 1385. Thus, we interpret claim 6 as merely requiring "objects" that have "a hierarchical relationship such that the result of one of the objects is input to another of the objects," and that directly invoke, e.g., call or pass control/data to, one another "so as to output a diagnosis of a patient" (claim 6).

Iliff discloses "a computerized medical diagnostic and treatment advice (MDATA) system" that gives medical advice (FF 1). The system provides "a set of steps directed to diagnosing a selected medical problem" and corresponding to "a representation of connected nodes," which request medical information or provide medical advice (FF 2).

The system also parses "an authoring language program" that includes the nodes and associated action lists (FF 3); and generates a "node table" that includes "parent node information and a node type" (*id.*). The authoring language is "human-readable," contains "node definitions," and has a syntax that is restructured into a machine-readable hierarchical format (FF 4-5). "Keywords" of the authoring language include a "parent" keyword that "defines the parent of the node being defined" (FF 6); and a "type" keyword that "defines the class of the node being defined" (*id.*). The "types" of nodes include a "prompt" node that requests information to be "stored in the next node" (FF 7); and a "link" node that directs the algorithm processing to a next predetermined node (*id.*).

In view of the above software object properties of Iliff's nodes (FF 3-6), a skilled artisan would have understood the nodes as being hierarchically-related "objects" of an "object based automated computer-implemented" system. Further, in view of the nodes' diagnostic and advice

functions (FF 1-2), which include requesting medical information to be "stored in the next node" and directing the MDATA process to other nodes (FF 7), the skilled artisan would have understood Iliff's nodes as having "a hierarchical relationship such that the result of one of the objects is input to another of the objects" and as directly invoking, e.g., calling or passing control/data to, one another "so as to output a diagnosis of a patient" (claim 6).

In the Reply Brief, Appellant further argues that though C/C++ is an "object oriented language," it does not generate "objects" as defined by the "Terminology Section" of Appellant's Specification (Reply Br. 6-7). This argument could have been raised in the Appeal Brief and is therefore waived. *See* 37 C.F.R. § 41.37 (c)(1)(vii). Further, even assuming arguendo that the "Terminology Section" defines "objects" in a manner distinguishing over Iliff, the "Terminology Section" states that "nothing in this section is meant to limit the meanings attributed to each word" (Spec. 6, ll. 16-17). Thus, we see no reason to limit the recited "objects" in accord with Appellant's Reply Brief argument.

Accordingly, Appellant has not shown the Examiner erred in finding that Iliff teaches the limitations of claim 6. We therefore affirm the rejection of claim 6, and dependent claims 7, 8, 20-27, 29, 30, 49, and 50 falling therewith, under 35 U.S.C. § 102.

As to independent claim 9, Appellant merely reasserts the above-addressed arguments (App. Br. 18-19). We therefore affirm the rejection of claim 9, and dependent claims 29-38, 40-42, and 51 falling therewith, under 35 U.S.C. § 102.

<center>*35 U.S.C. § 103(a)*</center>

As to independent claim 1, Appellant argues that the combined teachings of Iliff and Gray would not have suggested the claimed invention because "there is no discussion of archived symptom objects in the Iliff reference" (App. Br. 21).

The Examiner responds that Iliff teaches "various symptom objects" as part of "medical history objects" (Ans. 29).

Thus, another issue we address is whether the combined teachings of Iliff and Gray would have suggested "wherein the alternative symptoms for a particular preferred symptom are selected from a set of archived symptom objects that are available for reuse" (claim 1).

Claim 1 simply does not place any limitation on what "alternative symptom," "preferred symptom," and "symptom object" mean, include, or represent. Further, the label "symptom" is nonfunctional descriptive material that is not functionally related to its respective object. Thus, we interpret the limitation "wherein the alternative symptoms for a particular preferred symptom are selected from a set of archived symptom objects that are available for reuse" as merely requiring symptom information that is selected from, e.g., retrieved from, archived reusable objects.

Iliff discloses a past medical history objects database that catalogs medical conditions or diagnoses of a patient (FF 8). The past medical history objects are configured by completion of a medical questionnaire (FF 9) and required by the system's diagnostic algorithms (FF 10). The medical events or conditions of each patient are placed within a medical history file, which is appended each time a past medical history object is configured (FF 11).

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Since Iliff's medical history objects are stored by a database (FF 8), a skilled artisan would have understood them as being archived reusable objects. Further, since Iliff's medical history objects are configured by completion of a medical questionnaire (FF 9) and required by the system's diagnostic algorithms (FF 10), the skilled artisan would have understood them as providing retrievable symptom information. Thus, we find that the combined teachings of Iliff and Gray would have suggested "wherein the alternative symptoms for a particular preferred symptom are selected from a set of archived symptom objects that are available for reuse" (claim 1).

Appellant further argues that Iliff's teachings do not "describe symptom objects that are invoked so as to output a diagnosis of a patient based on the object invocation, as recited in pertinent part in Claim 1" (App. Br. 21). As noted above, however, Iliff's medical history objects are configured by completion of a medical questionnaire (FF 9) and required by the system's diagnostic algorithms (FF 10). A skilled artisan would have therefore understood Iliff's past medical history objects as being utilized to diagnose a patient, and in turn understood that a diagnosis output is based on and results from such invoking of those objects.

Accordingly, Appellant has not shown the Examiner erred in concluding that the combined teachings of Iliff and Gray would have suggested the limitations of claim 1. We therefore affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Iliff and Gray.

Appellant does not provide separate arguments for independent claim 11. We therefore also affirm the rejection of claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Iliff and Gray.

Appellant does not provide arguments for dependent claims 2-5, 10, 12-19, 43-48, and 52, but merely submits that they distinguish over the applied art in view of their dependence on claims 1, 6, 9, and 11 (App. Br. 21). We therefore affirm the rejection of claims 3-5, 10, 12, 13, 15-19, 43-48, and 52 under 35 U.S.C. § 103(a) as being unpatentable over Iliff and Gray; affirm the rejection of claims 2 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Iliff, Gray, and Branson; and affirm the rejection of claims 28 and 39 under 35 U.S.C. § 103(a) as being unpatentable over Iliff and Branson.

VI. CONCLUSIONS

Appellant has not shown the Examiner erred in concluding that claims 6-10, 20-42, and 49-51 are directed to nonstatutory subject matter.

Appellant has shown the Examiner erred in concluding claims 48-49 and 51-52 fail to comply with the written description requirement.

Appellant has not shown the Examiner erred in concluding claims 6-9, 20-27, 29-38, 40-42, and 49-51 are anticipated by the teachings of Iliff.

Appellant has not shown the Examiner erred in concluding claims 1, 3-5, 10-13, 15-19, 43-48, and 52 are unpatentable over the combined teachings of Iliff and Gray.

Appellant has not shown the Examiner erred in concluding claims 2 and 14 are unpatentable over the combined teachings of Iliff, Gray, and Branson.

Appellant has not shown the Examiner erred in concluding claims 28 and 39 are unpatentable over the combined teachings of Iliff and Branson.

VII. DECISION

The rejection of claims 6-10, 20-42, and 49-51 under 35 U.S.C. § 101 is affirmed.

The rejection of claims 48-49 and 51-52 under 35, U.S.C. 112, first paragraph (written description requirement) is reversed.

The rejection of claims 6-9, 20-27, 29-38, 40-42, and 49-51 under 35 U.S.C. § 102(b) is affirmed.

The rejections of claims 1-5, 10-19, 28, 39, 43-48, and 52 under 35 U.S.C. § 103(a) are affirmed.

<u>AFFIRMED-IN-PART</u>

peb

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